

FIG. 1

1	7	5	3	1	7	5	3
4	2	0	6	4	2	0	6
5	3	1	7	5	3	1	7
0	6	4	2	0	6	4	2
1	7	5	3	1	7	5	3
4	2	0	6	4	2	0	6
5	3	1	7	5	3	1	7
0	6	4	2	0	6	4	2

Figure 2

4D family	4D sub family	4D codeset	u5	u4	u3	u2	u1	u0	v'2	v'1	v'0	w'2	w'1	w'0	1st 2D codeset	2nd 2D codeset
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		1	1	0	0	0	0	0	1	0	0	1	0	0	4	4
		2	0	1	0	0	0	0	0	0	0	1	0	0	0	0
		3	1	1	0	0	0	0	1	0	0	0	0	0	4	0
	4	4	0	0	1	0	0	0	0	1	1	0	1	1	3	3
		5	1	0	1	0	0	0	1	1	1	1	1	1	7	7
		6	0	1	1	0	0	0	0	1	1	1	1	1	3	7
		7	1	1	1	0	0	0	1	1	1	0	1	1	7	3
	2	8	0	0	0	1	0	0	0	0	0	0	1	1	0	3
		9	1	0	0	1	0	0	1	0	0	1	1	1	4	7
		10	0	1	0	0	1	0	0	1	0	1	1	1	0	7
		11	1	1	0	1	0	0	1	0	0	0	1	1	4	3
	6	12	0	0	1	1	0	0	0	1	1	0	0	0	3	0
		13	1	0	1	1	0	0	1	1	1	1	0	0	7	4
		14	0	1	1	1	0	0	0	1	1	0	0	0	3	4
		15	1	1	1	1	0	0	1	0	1	0	0	0	7	0
1	1	16	0	0	0	0	1	0	0	1	0	0	1	0	2	2
		17	1	0	0	0	1	0	1	0	0	1	1	0	6	6
		18	0	1	0	0	0	1	0	0	0	1	1	0	0	6
		19	1	1	0	0	0	1	1	0	0	0	1	0	4	2
	5	20	0	0	1	0	0	1	0	1	1	0	0	1	3	1
		21	1	0	1	0	0	1	1	1	1	1	0	1	7	5
		22	0	1	1	0	0	1	0	1	1	0	0	1	3	5
		23	1	1	1	0	0	1	1	1	1	0	0	1	7	1
	3	24	0	0	0	1	0	1	0	0	0	0	0	1	0	1
		25	1	0	0	1	0	1	1	0	0	1	0	1	4	5
		26	0	1	0	1	0	1	0	0	0	1	0	1	0	5
		27	1	1	0	1	0	1	1	0	0	0	0	1	4	1
	7	28	0	0	1	1	0	1	0	1	1	0	1	0	3	2
		29	1	0	1	1	0	1	1	1	1	1	1	0	7	6
		30	0	1	1	1	0	1	0	0	1	1	1	1	1	7
		31	1	1	1	1	1	1	1	0	1	0	0	0	5	0

Figure 3

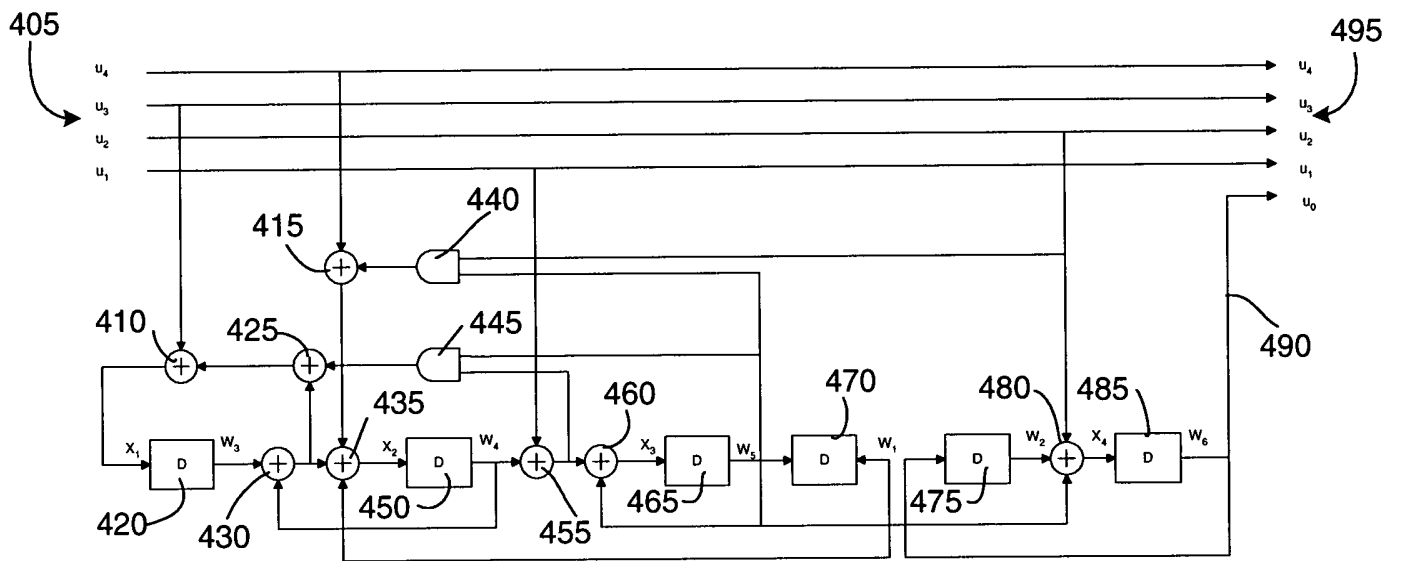


Figure 4

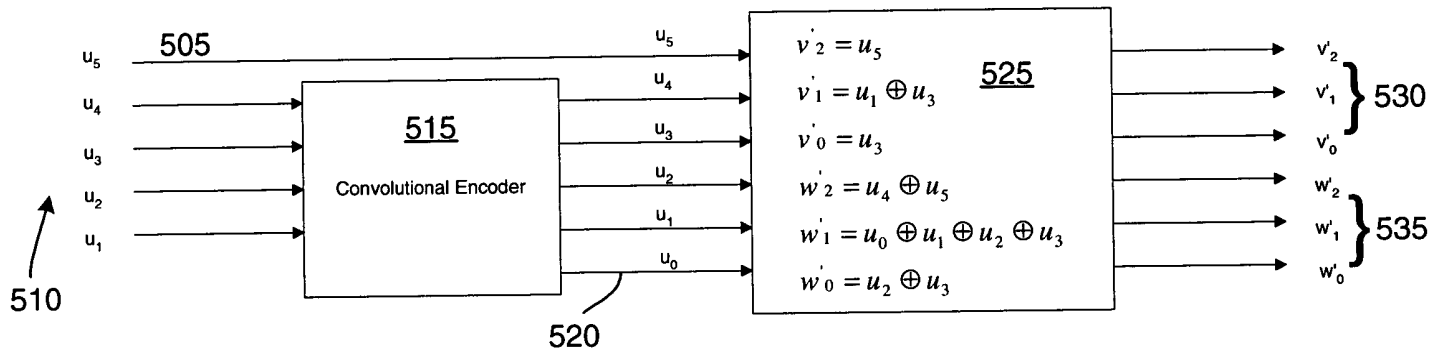


Figure 5

originating
states

		cosets associated with originaing states															
0	0	4	8	12	1	5	9	13	2	6	10	14	3	7	11	15	
1	16	20	24	28	17	21	25	29	18	22	26	30	19	23	27	31	
2	15	10	5	0	14	11	4	1	13	8	7	2	12	9	6	3	
3	31	26	21	16	30	27	20	17	29	24	23	18	28	25	22	19	
4	11	15	3	7	10	14	2	6	9	13	1	5	8	12	0	4	
5	27	31	19	23	26	30	18	22	25	29	17	21	24	28	16	20	
6	4	1	14	11	5	0	15	10	6	3	12	9	7	2	13	8	
7	20	17	30	27	21	16	31	26	22	19	28	25	23	18	29	24	
8	3	7	11	15	2	6	10	14	1	5	9	13	0	4	8	12	
9	19	23	27	31	18	22	26	30	17	21	25	29	16	20	24	28	
10	12	9	6	3	13	8	7	2	14	11	4	1	15	10	5	0	
11	28	25	22	19	29	24	23	18	30	27	20	17	31	26	21	16	
12	8	12	0	4	9	13	1	5	10	14	2	6	11	15	3	7	
13	24	28	16	20	25	29	17	21	26	30	18	22	27	31	19	23	
14	7	2	13	8	6	3	12	9	5	0	15	10	4	1	14	11	
15	23	18	29	24	22	19	28	25	21	16	31	26	20	17	30	27	
16	4	0	12	8	5	1	13	9	6	2	14	10	7	3	15	11	
17	20	16	28	24	21	17	29	25	22	18	30	26	23	19	31	27	
18	10	15	0	5	11	14	1	4	8	13	2	7	9	12	3	6	
19	26	31	16	21	27	30	17	20	24	29	18	23	25	28	19	22	
20	15	11	7	3	14	10	6	2	13	9	5	1	12	8	4	0	
21	31	27	23	19	30	26	22	18	29	25	21	17	28	24	20	16	
22	1	4	11	14	0	5	10	15	3	6	9	12	2	7	8	13	
23	17	20	27	30	16	21	26	31	19	22	25	28	18	23	24	29	
24	7	3	15	11	6	2	14	10	5	1	13	9	4	0	12	8	
25	23	19	31	27	22	18	30	26	21	17	29	25	20	16	28	24	
26	9	12	3	6	8	13	2	7	11	14	1	4	10	15	0	5	
27	25	28	19	22	24	29	18	23	27	30	17	20	26	31	16	21	
28	12	8	4	0	13	9	5	1	14	10	6	2	15	11	7	3	
29	28	24	20	16	29	25	21	17	30	26	22	18	31	27	23	19	
30	2	7	8	13	3	6	9	12	0	5	10	15	1	4	11	14	
31	18	23	24	19	22	25	28	16	21	26	31	17	20	27	30		
32	1	5	9	13	0	4	8	12	3	7	11	15	2	6	10	14	
33	17	21	25	29	16	20	24	28	19	23	27	31	18	22	26	30	
34	14	11	4	1	15	10	5	0	12	9	6	3	13	8	7	2	
35	30	27	20	17	31	26	21	16	28	25	22	19	29	24	23	18	
36	10	14	2	6	11	15	3	7	8	12	0	4	9	13	1	5	
37	26	30	18	22	27	31	19	23	24	28	16	20	25	29	17	21	
38	5	0	15	10	4	1	14	11	7	2	13	8	6	3	12	9	
39	21	16	31	26	20	17	30	27	23	18	29	24	22	19	28	25	
40	2	6	10	14	3	7	11	15	0	4	8	12	1	5	9	13	
41	18	22	26	30	19	23	27	31	16	20	24	28	17	21	25	29	
42	13	8	7	2	12	9	6	3	15	10	5	0	14	11	4	1	
43	29	24	23	18	28	25	22	19	31	26	21	16	30	27	20	17	
44	9	13	1	5	8	12	0	4	11	15	3	7	10	14	2	6	
45	25	29	17	21	24	28	16	20	27	31	19	23	26	30	18	22	
46	6	3	12	9	7	2	13	8	4	1	14	11	5	0	15	10	
47	22	19	28	25	23	18	29	24	20	17	30	27	21	16	31	26	
48	5	1	13	9	4	0	12	8	7	3	15	11	6	2	14	10	
49	21	17	29	25	20	16	28	24	23	19	31	27	22	18	30	26	
50	11	14	1	4	10	15	0	5	9	12	3	6	8	13	2	7	
51	27	30	17	20	26	31	16	21	25	28	19	22	24	29	18	23	
52	14	10	6	2	15	11	7	3	12	8	4	0	13	9	5	1	
53	30	26	22	18	31	27	23	19	28	24	20	16	29	25	21	17	
54	0	5	10	15	1	4	11	14	2	7	8	13	3	6	9	12	
55	16	21	26	31	17	20	27	30	18	23	24	29	19	22	25	28	
56	6	2	14	10	7	3	15	11	4	0	12	8	5	1	13	9	
57	22	18	30	26	23	19	31	27	20	16	28	24	21	17	29	25	
58	8	13	2	7	9	12	3	6	10	15	0	5	11	14	1	4	
59	24	29	18	23	25	28	19	22	26	31	16	21	27	30	17	20	
60	13	9	5	1	12	8	4	0	15	11	7	3	14	10	6	2	
61	29	25	21	17	28	24	20	16	31	27	23	19	30	26	22	18	
62	3	6	9	12	2	7	8	13	1	4	11	14	0	5	10	15	
63	19	22	25	28	18	23	24	29	17	20	27	30	16	21	26	31	

ending
states

cosets associated with ending states																	
0	0	11	3	8	4	15	7	12	1	10	2	9	5	14	6	13	
1	4	15	7	12	0	11	3	8	5	14	6	13	1	10	2	9	
2	8	3	11	0	12	7	15	4	9	2	10	1	13	6	14	5	
3	12	7	15	4	8	3	11	0	13	6	14	5	9	2	10	1	
4	1	10	2	9	5	14	6	13	0	11	3	8	4	15	7	12	
5	5	14	6	13	1	10	2	9	4	15	7	12	0	11	3	8	
6	9	2	10	1	13	6	14	5	8	3	11	0	12	7	15	4	
7	13	6	14	5	9	2	10	1	12	7	15	4	8	3	11	0	
8	2	9	1	10	6	13	5	14	3	8	0	11	7	12	4	15	
9	6	13	5	14	2	9	1	10	7	12	4	15	3	8	0	11	
10	10	1	9	2	14	5	13	6	11	0	8	3	15	4	12	7	
11	14	5	13	6	10	1	9	2	15	4	12	7	11	0	8	3	
12	3	8	0	11	7	12	4	15	2	9	1	10	6	13	5	14	
13	7	12	4	15	3	8	0	11	6	13	5	14	2	9	1	10	
14	11	0	8	3	15	4	12	7	10	1	9	2	14	5	13	6	
15	15	4	12	7	11	0	8	3	14	5	13	6	10	1	9	2	
16	16	27	19	24	20	31	23	28	17	26	18	25	21	30	22	29	
17	20	31	23	28	16	27	19	24	21	30	22	29	17	26	18	25	
18	24	19	27	16	28	23	31	20	25	18	26	17	29	22	30	21	
19	28	23	31	20	24	19	27	16	29	22	30	21	25	18	26	17	
20	17	26	18	25	21	30	22	29	16	27	19	24	20	31	23	28	
21	21	30	22	29	17	26	18	25	20	31	23	28	16	27	19	24	
22	25	18	26	17	29	22	30	21	24	19	27	16	28	23	31	20	
23	29	22	30	21	25	18	26	17	28	23	31	20	24	19	27	16	
24	18	25	17	26	22	29	21	30	19	24	16	27	23	28	20	31	
25	22	29	21	30	18	25	17	26	23	28	20	31	19	24	16	27	
26	26	17	25	18	30	21	29	22	27	16	24	19	31	20	28	23	
27	30	21	29	22	26	17	25	18	31	20	28	23	27	16	24	19	
28	19	24	16	27	23	28	20	31	18	25	17	26	22	29	21	30	
29	23	28	20	31	19	24	16	27	22	29	21	30	18	25	17	26	
30	27	16	24	19	31	20	28	23	26	17	25	18	30	21	29	22	
31	31	20	28	23	27	16	24	19	30	21	29	22	26	17	25	18	
32	15	4	12	7	10	1	9	2	14	5	13	6	11	0	8	3	
33	10	1	9	2	15	4	12	7	11	0	13	6	14	5	13	6	
34	5	14	6	13	0	11	3	8	4	15	7	12	1	10	2	9	
35	0	11	3	8	5	14	6	13	1	10	2	9	4	15	7	12	
36	14	5	13	6	11	0	8	3	15	4	12	7	10	1	9	2	
37	11	0	8	3	14	5	13	6	10	1	9	2	15	4	12	7	
38	4	15	7	12	1	10	2	9	5	14	6	13	0	11	3	8	
39	1	10	2	9	4	15	7	12	0	11	3	8	5	14	6	13	
40	13	6	14	5	8	3	11	0	12	7	15	4	9	2	10	1	
41	8	3	11	0	13	6	14	5	9	2	10	1	12	7	15	4	
42	7	12	4	15	2	9	1	10	6	13	5	14	3	8	0	11	
43	2	9	1	10	7	12	4	15	3	8	0	11	6	13	5	14	
44	12	7	15	4	9	2	10	1	13	6	14	5	8	3	11	0	
45	9	2	10	1	12	7	15	4	8	3	11	0	13	6	14	5	
46	6	13	5	14	3	8	0	11	7	12	4	15	2	9	1	10	
47	3	8	0	11	6	13	5	14	2	9	1	10	7	12	4	15	
48	31	20	28	23	26	17	25	18	30	21	29	22	27	16	24	19	
49	26	17	25	18	31	20	28	23	27	16	24	19	30	21	29	22	
50	21	30	22	29	16	27	19	24	20	31	23	28	17	26	18	25	
51	16	27	19	24	21	30	22	29	17	26	18	25	20	31	23	28	
52	30	21	29	22	27	16	24	19	31	20	28	23	26	17	25	18	
53	27	16	24	19	30	21	29	22	26	17	25	18	31	20	28	23	
54	20	31	23	28	17	26	18	25	21	30	22	29	16	27	19	24	
55	17	26	18	25	20	31	23	28	16	27	19	24	21	30	22	29	
56	29	22	30	21	24	19	27	16	28	23	31	20	25	18	26	17	
57	24	19	27	16	29	22	30	21	25	18	26	17	28	23	31	20	
58	23	28	20	31	18	25	17	26	22	29	21	30	19	24	16	27	
59	18	25	17	26	23	28	20	31	19	24	16	27	22	29	21	30	
60	28	23	31	20	25	18	26	17	29	22	30	21	24	19	27	16	
61	25	18	26	17	28	23	31	20	24	19	27	16	29	22	30	21	
62	22	29	21	30	19	24	16	27	23	28	20	31	18	25	17	26	
63	19	24	16	27	22	29	21	30	18	25	17	26	23	28	20	31	



Figure 8

	vb-1	vb-2	vb-3	vb-4	Xc	Xc-1	Yc	Yc-1
0	0	0	0	0	0	0	0	0
1	0	0	0	1	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	1	0	0	0	0
4	0	0	1	0	0	0	1	1
5	0	0	1	1	0	0	1	1
6	0	0	1	0	0	0	1	1
7	0	0	1	1	0	0	1	1
8	0	1	0	0	1	1	0	0
9	0	1	0	1	1	1	0	0
10	0	1	0	0	1	1	0	0
11	0	1	0	1	1	1	0	0
12	0	1	1	0	1	1	1	1
13	0	1	1	1	1	1	1	1
14	0	1	1	0	1	1	1	1
15	0	1	1	1	1	1	1	1
16	1	0	0	0	1	1	0	1
17	1	0	0	1	0	0	1	0
18	1	0	0	0	1	0	0	0
19	1	0	0	1	1	0	0	0
20	1	0	1	0	0	0	0	1
21	1	0	1	1	0	1	0	0
22	1	0	1	0	0	0	0	1
23	1	0	1	1	1	0	1	1
24	1	1	0	0	0	1	0	0
25	1	1	0	1	1	1	1	0
26	1	1	0	0	1	0	1	1
27	1	1	0	1	1	1	1	0
28	1	1	1	0	0	1	1	1
29	1	1	1	1	0	1	1	1
30	1	1	1	0	1	1	0	1
31	1	1	1	1	0	0	1	0

Figure 9

				5	3	1	7	5	3	1	7		
				0	6	4	2	0	6	4	2		
5	3	1	7	5	3	1	7	5	3	1	7		
0	6	4	2	0	6	4	2	0	6	4	2		
1	7	5	3	1	7	5	3	1	7	5	3		
4	2	0	6	4	2	0	6	4	2	0	6		
5	3	1	7	5	3	1	7	5	3	1	7		
0	6	4	2	0	6	4	2	0	6	4	2		
1	7	5	3	1	7	5	3	1	7	5	3		
4	2	0	6	4	2	0	6	4	2	0	6		
				1	7	5	3	1	7	5	3		
				4	2	0	6	4	2	0	6		

Figure 10

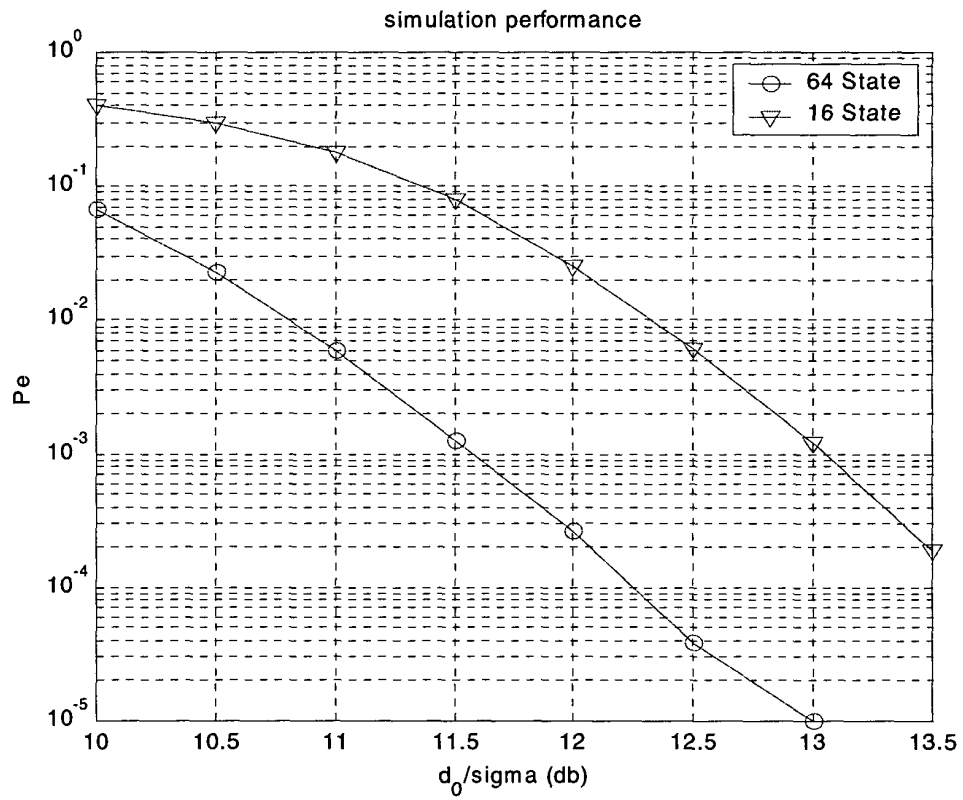


Figure 11